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Ὡς ἐμεγαλύνθη τὰ ἔργα σου, Κύριε!—πάντα ἐν σοφίᾳ ἐποίησας.
ΨΑΛΜ. ργ΄. 24.

Benedicite universa germinantia in terra Domino; laudate et superexaltate Eum in secula.—*Hymn. iii Pueror. v. 76.*

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BOTANY OF SPAIN.

A Few Days' Botanizing in the North-Eastern Provinces of Spain, in April and May, 1860.

No. I. CATALONIA.

There is hardly any country in Europe whose floral treasures are less known to botanists than those of Spain. That country has produced few indigenous botanists. She possesses, practically speaking, no local Flora; the only one known to Europe being the old, rare, and costly work of Cavanilles, in which, along with such of the native plants as were known in his time, descriptions and figures are given of the American and other exotics cultivated in the Madrid Botanical Garden. There is another book, which the present writer had never heard of, but which he saw on a bookstall at Barcelona; a 'Flora of Spain,' bearing a date soon after the middle of the last century, in which the names given to species are Linnæan, but the genera are arranged on the simple and primitive plan of alphabetical order. M. Boissier, to whom the botany of the Mediterranean basin is so much indebted, has made excursions in several parts of Spain, the botanical results of which have been published. And this is nearly all which has been done for Spanish botany. Yet the country is one of the most largely endowed in our quarter of the globe, with the conditions on which variety of indigenous vegetation depends. It reaches further south than any country in Europe; the rock of Gibraltar being some fifty miles nearer to the Equator than the most southern promontories of Sicily or Greece. The low latitude of the northern provinces, compared with England, Germany, and the greater part of France, is more than compensated by their mountainous character, which renders their vegetation a copious sample of all northern climates, to the Arctic inclusive. Modern investigation has shown that there is as marked a difference between the western and eastern Floras, as between the northern and southern; and of this distribution also, both branches are fully represented in the Peninsula. Its northern and western coasts, especially if we include Portugal, are the typical example of the western or Atlantic Flora; while the dry eastern districts, from the Pyrenees to Carthagena (and no doubt

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the south coast also), belong in all respects to the Mediterranean portion of the eastern botanical region. Of soils there are all varieties, from the richest alluvion to the barest granitic or calcareous rock; and the proportion of waste is probably unequalled in any European country, Greece and Turkey excepted.

That a country with these attractions to botanists, should have been so little explored by them, is an effect, doubtless, of the same causes which have made, until lately, the resort of travellers thither, for any but commercial purposes, comparatively infrequent; the disturbed state of the country through civil war, the danger from banditti, and the absence of the facilities for travelling afforded by roads, inns, and means of conveyance. The first two of these hindrances have completely, and, it is to be hoped, permanently disappeared. Civil wars are ended, and brigands are now never heard of. The remaining difficulties are in a course of rapid removal. Security and freedom—for in spite of the imperfections of her institutions and of her administration, Spain is a free country—are producing their natural fruits. The impulse given to the national mind by political emancipation; the freedom of speaking and printing which has been enjoyed for nearly a generation; the downfall of the Inquisition, and the decline of the great enemy of modern ideas, the Catholic hierarchy (for Spain, though still a Catholic, is no longer a priest-ridden country) have brought that fine people once more into the full current of European civilization. In the material department of national improvement, Spain is rapidly recovering her lost ground. Instead of the desolate and neglected appearance which we are taught to expect, every province which I visited, except the naturally arid and unfertile plain of Aragon, wore the appearance of diligent and careful agriculture, and not unfrequently of active and successful manufacturing industry. The soil of Spain will soon be completely intersected by railroads. The lines from Madrid to Valencia and Alicante, from Cadiz through Xeres and Seville to Cordova, are open throughout. Of those from Madrid to the French frontier, at both extremities of the Pyrenean chain, large portions have been opened, as well as many shorter and branch railways. The common roads are now numerous, and some of them good. The diligences surprise one by their number. Their rapidity was already noted at a time when the state of the roads seemed hardly compatible with that quality. But what most surpassed my expectation was the inns. My experience is indeed limited to a few provinces. There, however, they are not only, in the great towns, very tolerable, but even in small roadside places we found them equal to the small country inns of France. The hotels of Madrid, indeed, cannot be compared to those of the great towns of France, and are inferior to those of some places in Spain itself; but Madrid, except in being the seat of the government and Court, is the capital of Castile rather than of Spain. At Barcelona, Valencia, and Zaragoza, there are hotels about on a par with those of provincial towns of secondary rank in France; while not only at places like Tarragona or Guadalaxara, but even at an insignificant village like Alcolea, on the plateau of Castile, a hamlet distinguished by nothing but by being one of the stopping-places of the diligences from Madrid to Zaragoza, we found a roadside inn at which it was possible to sleep and even to make some stay in comfort. I should not indeed advise any one to travel in these provinces in the months of August and September, both on account of the heat, and of the plague of insects which might at that season be expected. But these months are later or earlier than a botanist in the south of Europe has any inducement to travel. Botanists, walking tourists, and all who are accustomed to penetrate into the nooks and corners of a country, will find Spain, in the present day, no more closed to them than any other part of Europe.

I should not presume to offer as worthy of attention, such fragmentary notices as I could pick up in a mere run through any country whose botany was known, and which possessed local Floras. Even as regards Spain, my passing observations have little of the value which would belong to those of a profound botanist. My only qualifications are delight in the subject, and some acquaintance with a considerable portion of the general Flora of Southern Europe. I have therefore to apologize beforehand for many deficiencies, and doubtless for some errors. It requires a really good botanist to investigate the plants of a country, with a universal "Species Plantarum" for his sole guide: neither can a traveller carry about with him De Candolle's 'Prodromus' and Kunth's 'Enumeratio,' which, moreover, even joined together, are not complete; and to determine plants by them afterwards from dried specimens, is a task of which every one knows the difficulty. The books I had with me were the 'Flore de France,' by Grenier and Godron; Woods' 'Tourist's Flora' (in which Spain is not included); and by way of a general Flora, the Compendium of Persoon, which, notwithstanding the extreme brevity and frequent want of precision of its descriptions, enabled me to determine some plants which I could not otherwise have identified. I must premise further, that the only mode of travelling in Spain (except on horseback) being by public conveyances, want of time, and of information as to halting-places, confined us for the most part to journeys from one large town to another; and the rapid pace of the diligences precluded even that common resource of Continental travelling, taking advantage of hills for pedestrian exploration of roadsides. My experience therefore of Spanish botany was mostly confined to the immediate vicinity of considerable towns. Of the intermediate spaces I saw, in general, only what could be seen from a diligence drawn by from ten to sixteen mules at full gallop, or through the windows of a railway carriage; and thus, although I passed a whole month in Spain, I had but a few days of real botanizing during that period, which extended from the middle of April to the middle of May, in an extremely backward season. It is a proof of the botanical riches of the country, that with only these opportunities and such imperfect qualifications, I can still furnish a respectable list of plants.

The province which I first visited, and of which I saw most, was Catalonia; which, both botanically and geologically, may serve as a representative of the whole north-east region of Spain. It differs from Aragon and Valencia chiefly in being more mountainous. Its northern portion is a confused heap of mountains; and all the way to Barcelona these come down to, or very near, the sea. Towards Barcelona they open out into a crescent of no great depth, leaving a semicircular plain, in the centre of which, on the sea, stands this fine city, rich in the signs of prosperous industry, and hemmed in by a girdle of populous villages as prosperous as itself. Close beside it, on a hill cultivated to the top, is the celebrated but not formidable-looking fortress of Monjuich, the scene of so many exploits in the old wars. The plain is rich and fertile, without artificial irrigation, at least in the usual Spanish manner, by canals. Such irrigational apparatus as I saw (all of which was quite close to Barcelona) consisted of those curious irrigation-towers, the work of the Saracens, which form a conspicuous, and, at first sight, a puzzling feature in the country about Palermo. The plain is crossed here and there by gullies, cut deep into the soil by the torrents of rain which must descend at certain seasons from the adjacent mountains.

The conditions of soil and climate in Catalonia, are much the same as in the Mediterranean provinces of France, and the botany accordingly is very similar. It is the country of the Olive, the Fig, the Vine, and, further south, of the spreading and shady but stiff-leaved Caruba (*Ceratonia Siliqua*) but not of the Orange and the Myrtle. The Aloe (*Agave americana*), and the Prickly Pear (*Cactus Opuntia*) are found; but not, as in Sicily, in wild abundance, forming a great feature in the landscape. The first chiefly appears in the form of hedges (as in Roussillon); and the Cactus I did not observe further north than Tarragona. There too I first came upon the Palmetto (*Chamærops humilis*), the dwarfish representative of the mighty family of *Palmæ;* that stiff low prickly bush which half covers with its *chevaux-de-frise* of fan-like leaves the vast wastes of Sicily. It abounds also on the line of road from Tarragona to Valencia, and its fibres are made into a kind of matting, the production of which is part of the domestic industry of the country. The plants of the Catalonian landscape were chiefly those of the rocky calcareous wilds of Languedoc and Provence, called locally *Garrigues,* from the provincial name (according to M. Léonce de Lavergne) of the dwarf evergreen Oak which covers them; the *Quercus coccifera,* in which the *Kermes* insect, the European variety of the cochineal, elaborates its brilliant dye. This, and *Quercus Ilex,* are the principal representatives of the old Order *Amentaceæ. Pistacia Lentiscus,* the Mastic-tree of Scripture (to my surprise I saw little of the still finer *P. Terebinthus,* though equally or more common in the south of France); the fragrant Tree-Heath (*Erica arborea*); the still more powerfully odorous woody Thyme (*Thymus vulgaris*), inferior in beauty, but superior in odour to our *T. Serpyllum* (which grows there also); that common southern plant, the Rosemary (*Rosmarinus officinalis*); the Spanish Broom of our gardens (*Spartium junceum*) with its intoxicating perfume; the prickly Broom of the south of France (*Genista Scorpius*), which though humbler in stature than our tall Furze, colours the landscape in spring with similar masses of brilliant yellow, while it projects its sword-like flowering branches vertically and laterally, like the dwarf autumnal Furze of our commons; these form the most conspicuous clothing of the uncultivated ground in the coast region of Catalonia. The honeyed *Koniga maritima,* in flower at all seasons, and especially after other flowers have disappeared, covers the ground, both waste and cultivated, to great distances from the sea; and another winter plant, *Diplotaxis erucoides* (which is brought into Rome by cartloads in full flower throughout January), adorns the cultivated lands with its light-grey cruciform blossoms. If to these we add several species of *Cistus* and *Helianthemum* (of which hereafter), a tolerably complete idea is given of the vegetation, as it exhibits itself at this season to an eye merely wandering over the face of the country.

To proceed to local details; the plants of Barcelona may be divided into those of the plain, and those of the crescent of low calcareous mountains which overlook it. The brightest flower of the plain, in these spring months, is *Hypecoum procumbens,* a Papaveraceous plant, with a flower like that of *Chelidonium majus,* and about as large, though the plant itself is small in comparison. It has a long, crooked pod, and its leaves are cut like those of an *Erodium.* Notwithstanding the name *procumbens,* the plant, though spreading, is erect, and grows copiously among the corn, in appearance like an agrarian *Ranunculus,* of greater size and finer quality than *R. arvensis.* I found this plant in other parts of Spain, and I had already found it near Perpignan. I will not affirm that some of it may not be *H. grandiflorum,* if there be any real difference between the two. I met with another undoubtedly different *Hypecoum* further south, which will be commemorated in its place. Of *Ranunculi* I noticed near Barcelona only *R. bulbosus,* and the aquatic but not batrachian species *muricatus,* allied to *sceleratus,* but with a fruit of a somewhat similar character to *arvensis.* A fine *Fumaria,* with large white and purple flowers (which I also saw near Perpignan), seemed to be *muralis* of Grenier and Godron; but those authors, I observe, have on reconsideration decided their plant to be not one species but three, none of them the true *muralis* of Sender. The *Cruciferæ* I noticed were those common plants of southern France, *Sisymbrium Irio* and *obtusangulum,* and *Lepidium Draba. Reseda Phyteuma,* a plant nearly resembling *odorata,* but without its smell, was here, as in most parts of the south of Europe, abundant. This plant reaches so far north in France, that it might well have been looked for in England. The family *Geraniaceæ* is represented by *Erodium malachoides*. *Oxalis corniculata*, and the brittle bush *Coriaria myrtifolia*, with its currant-like racemes clothing its dry-looking branches long before the leaves come out, are here common. Of Leguminous plants, the most worthy of notice is *Lathyrus Ochrus*, a procumbent species, with large oval leaflets, (like a greater and paler *L. Aphaca*,) which haunts, as in Sicily, low moist places in the alluvial ground. The place of our *Lotus corniculatus* is taken by another Sicilian plant, the equally yellow and not less elegant *L. ornithopodioides*. Another Leguminous plant, with oval leaflets and round leaf-like stipules, is *Arthrolobium* (formerly *Ornithopus*) *scorpioides*. Of *Rosaceæ*, the principal is that happily ubiquitous shrub, the Hawthorn; I did not examine whether in both its forms or only in one. It is curious that the form *monogyna* is sometimes the only one found in a large tract of country. According to Gussone, there is no other in Sicily. The only *Potentilla* I saw was *P. verna*, which is rather frequent. The Composites were those common in the south: *Sonchus tenerrimus*, like our common Sowthistle, but much more fragile and delicate; *Picridium vulgare*, with its urceolate flowers and hard scarious phyllaries; that ornament of banks, *Urospermum Dalechampii*, and the coarser *U. picroides*; the small Marigold, *Calendula arvensis*; this last is found as far north as Normandy, and I believe no botanist knows, any more than myself, why it does not grow in Kent. Who can tell why *Specularia Speculum*, the Venus's Looking-glass of our gardens, comes up to the very Straits of Dover as a cornfield plant, while, though so generally cultivated in England, we never see it wild, even as an escape from culture?—or why *Orlaya grandiflora*, which I have gathered in cornfields between Boulogne and St. Omer, should not be found in England at all?—or why that commonest of Continental weeds, even on the sands opposite the English coast, *Eryngium campestre*, should be the rarest of rare plants in England, and should not spread even when introduced as a ballast plant. These secrets of vegetation will, perhaps, be some day unveiled. The only Thistles in flower near Barcelona, at this early season, were the same as in Sicily; *Carduus pycnocephalus* (allied to *C. tenui-*

florus) and the elegant *Galactites tomentosa.* Of *Boragineæ,* I observed the common Borage, and a fine *Echium,* perhaps the *violaceum* of the Channel Islands, but it was not sufficiently advanced to enable me to distinguish it with perfect certainty from *E. plantagineum,* one of the handsomest of the tribe, which, as well as others, has been confounded under the name *violaceum.* The *Scrophularineæ* were *Antirrhinum Orontium;* the brilliantly yellow *Linaria supina; Scrophularia peregrina* of Italy and Sicily; *S. canina* of southern and middle Europe. The genus *Euphorbia* was largely represented: *E. Peplus* and *helioscopia* of course; those fine plants *serrata* and *Characias,* the first common in the south of France, the second everywhere in the South (*E. Cyparissias* and *gerardiana,* so frequent in southern Europe, I did not see); but the principal *Euphorbia* of the plain of Barcelona is *E. terracina,* less striking in appearance than some of these, but more curious when examined. The calycinal glands characteristic of the genus, which in this, as in many other species, are of a crescent form, are terminated in *E. terracina* by a pair of setæ, exactly resembling the antennæ of an insect. The *Monocotyledoneæ* which I noted were that common weed *Muscari comosum,* the wild original of one of the ornaments of our gardens, and *Asphodelus fistulosus,* the smallest European species of its genus, not general in the south of France, though not unknown there, but most plentiful here as well as in Sicily. Of Ferns, no abundance could be expected in these dry climates, but the Ceterach grew plentifully here and elsewhere, as did also the Maidenhair (*Adiantum Capillus-Veneris*), wherever there was local dampness and depth of shade.

The mountain Flora of Barcelona is much more copious, and as I explored it twice, at some interval of time, I can give a rather fuller account of it. Apart from their form and composition, these heights would scarcely be entitled to a more ambitious name than that of hills. The range, at least this part of it, is of small breadth, and the line of summit looks down upon a wide extent of country, rugged and rocky enough, but of little elevation, though varied with occasional eminences, among which the lofty and many-pinnacled ridge of Monserrat is supreme. The rocks of the maritime range are calcareous, like those of Bas-Languedoc and Provence, and the mountain sides are cut through by deep ravines, of which the gullies that intersect the plain are a continuation. The rocks, though in most parts thickly clothed with bushy shrubs, show few trees, except a pine-grove here and there. The species of the Pine I did not verify, but it had the aspect of *P. halepensis*, the common Pine of the Mediterranean provinces of France. The remaining wood was chiefly *Ilex*, kept low and bushy by the woodcutters. The floral treasures of this range are considerable. *Leguminosæ* are the most abundant. Besides the thorny *Genista Scorpius* and the Spanish Broom, I noticed two other plants of kindred character: the Furze which fills so large a place in the winter Flora of Provence (*Ulex parviflorus*, or *provincialis*), and the thorny Cytisus, which covers Sicily in March with its yellow blossoms, *Calycotome spinosa*, unless I am mistaken in this last, which was not yet in flower. Of non-thorny Cytisi there were as many as three: *C. candicans* (*Genista* of some authors), one of the most elegant, and here the most flowery of this elegant genus; *C. triflorus*, a shrub of the height of a man, which blackens in drying, and with which all who have botanized near Naples must be familiar; and the dwarfish *C. argenteus* (by some called *Argyrolobium linnæanum*), one of the *Garrigue* plants of the south of France. *Anthyllis* was represented by *A. tetraphylla*, a Palermo plant; *Trifolium*, by the well-named *T. stellatum*; *Medicago* by several, which, for want of sufficiently developed fruits, I did not determine, but which were apparently some of the common ones of the south of France,—*M. minima, denticulata, præcox, Gerardi, orbicularis*, or *marginata*. The commonest of the *Coronillæ* of southern France, *C. Emerus*, made a large display of its loosely hung blossoms. Here, as everywhere in Spain, the *Hippocrepis comosa*, the charm of English chalk hills, brought pleasant remembrances of the floral beauties of Surrey and Kent, though often, doubtless, confounded with *H. glauca*, a plant equally common, and if specifically different, perfectly resembling *comosa* in habit and general appearance. The *Lathyri* were represented by the delicate and slender *L. setifolius*, and the large-flowered *L. Clymenum* (*tenuifolius* of Gussone), which I have also found at Perpignan and at Palermo. *Vicia* presented me with *V. tenuifolia* of Roth, an improved likeness of *V. Cracca*; and the much less beautiful *triflora* of Tenore, the first plant I met with which is not a native of France. *Astragalus* offered a species rather insignificant in appearance, *A. sesameus*, a plant not unlike, at the first glance, to *Bisserrula Pelecinus;* and another, the commonest, but one of the most gorgeous of this splendid genus, which grows in Normandy, and ought to grow in Kent, *A. monspessulanus.* My Catalonian specimens were not of the usual colour, but paler, and with a mixture of yellow; a character attributed to the neighbouring *A. incanus,* but not, so far as I know, to any form of *monspessulanus;* this plant, however, seemed to possess the essential characters of the more common species. Among *Leguminosæ* not yet in flower, I may mention two common plants of southern Europe, the bushy *Dorycnium suffruticosum,* with its small round heads of pale flowers, which I have known to whiten at a distance large spaces of ground; and the trefoiled *Psoralea bituminosa,* with its elegant flowering clusters, and long axillary peduncles.

The greatest ornaments however of these bushy hills were the *Cisti,* which form in some places a great part of the whole vegetation. Without reckoning Helianthemums, there were four species of *Cistus* proper; bushes covered all over with large and brilliant blossoms; the decumbent *salviæfolius,* with its milk-white cups; the erect *albidus,* with its grey foliage and delicate mallow-coloured flowers, larger than the largest wild Rose; the stiffish, narrow-leaved *monspeliensis,* with flowers rather smaller than *salviæfolius,* flat and wheel-like, instead of cup-shaped; and a rarer species than any of these, *C. Ledon,* which, with *monspeliensis,* by their viscous touch, and rich resinous smell, form a transition to the real European Gum Cisti, *C. ladaniferus* and *laurifolius.* The *Cisti,* happily for Spanish landscape, are, like the *Ericæ,* gregarious plants, and, of all *Cisti* I know, none are so gregarious as *C. Ledon.* Near Perpignan, and on the plateau of Morières, near Avignon, it covers acres of ground. Of *Corolliflorœ* not previously mentioned, I noticed a *Verbascum,* probably *V. Boerhavii;* the deep blue *Lithospermum purpurocæruleum,* not unknown in England, and one of the most frequent as well as beautiful of the wood and thicket plants of the South in April and May; *Veronica Teucrium,* which vies with, if it does not surpass our beautiful *Chamædrys;* that curious plant, *Lavandula Stœchas,* named, like several other plants, from the isles of Hyères, but tolerably general in the south of Europe; and *Stachys hirta,* a plant in France confined to the extreme south-eastern corner. Other plants in flower were, a rare but rather dull-looking *Polygala, P. rupestris,* growing in clefts of the rocks; *Paronychia argentea,* one of the ornaments of Sicily, carpeting the ground with its silvery inflorescence and herbage; *Osyris alba,* a scraggy bush of the family *Eleagneæ,* abundant in the South, which, covered at this season with yellow blossoms, fills the air all around with a powerful fragrance like that of the *Galia.* At the back of the ridge, looking towards the north and north-west, I came upon plants of a decidedly English character. *Euphorbia Characias* and *serrata* were replaced by *E. amygdaloides;* and I found here the first Orchid I saw in Spain, *Cephalanthera ensifolia,* a rare, but still a British species. Our common wild Strawberry was occasionally visible. These were nearly all the plants of interest which I saw in flower. Most of the *Compositæ* were not yet in a state to be recognizable. The only ones in flower were *Senecio vulgaris* and *viscosus. Inula viscosa,* and *Phagnalon* (or *Conyza*) *saxatile* were distinguishable. The plants not in flower included several of the most characteristic shrubs of southern Europe: the gorgeous Pomegranate, the evergreen *Phillyræa media,* the common *Arbutus* (*A. Unedo*), and one of the most powerfully and sweetly odoriferous of European climbers, which retains its fragrance for many years in the herbarium, *Smilax aspera.* To these let me add the perfoliate *Lonicera implexa,* and another Honeysuckle, which was probably *etrusca,* the other common one of the South; for our Woodbine is in southern Europe a mountain plant, and our garden *L. caprifolium* I have seen wild only in Italy. The curious *Asparagus acutifolius; Bupleurum rigidum,* one of the oddest species of a genus already anomalous among Umbellifers; and *Daphne Gnidium,* an ornament of late summer and autumn, complete the list of my observations in the Barcelona mountains, with the exception of Monserrat, the copious botany of which I keep for a separate notice.

Many of the plants above enumerated, I afterwards met with in the same line of country further north, where another evergreen oak, the Cork tree (*Quercus Suber*), abounds, and its produce is an important article of commerce. Here, too, the English Broom, *Sarothamnus scoparius,* makes its appearance, even in the plain, at least near the foot of the mountains. Other common English plants, *Stellaria Holostea, Chrysanthemum segetum, Centaurea Cyanus,* are abundantly visible to the passing eye, together with ***Lavandula Stœchas, Cistus albidus*** and ***salviæfolius, Ulex parviflorus, Euphorbia terracina*** and ***amygdaloides, Muscari comosum,*** and an ***Ononis,*** probably ***Natrix.*** In the woody hills near Gerona, in the middle of May, I had a botanical walk of considerable interest. A deep shady wood of deciduous trees afforded the beautiful ***Geum sylvaticum*** (otherwise ***atlanticum***). This, with ***Onobrychis supina,*** and the dwarfish and quaint ***Lithospermum apulum,*** I observed nowhere else in Spain. I found also (besides many of the Barcelona plants) the beautiful ***Allium roseum,*** the rush-like ***Aphyllanthes monspeliensis,*** with its large and curiously lined azure flowers, the narrow-leaved ***Phillyræa*** (***P. angustifolia***) of our shrubberies; a ***Sideritis,*** (I believe ***S. hirsuta***); and a characteristically southern tree of the family ***Urticeæ, Celtis australis,*** the ***Micocoulier*** of the south of France: not to mention ***Helleborus fœtidus, Aquilegia vulgaris, Alyssum calycimum, Potentilla reptans,*** and sundry common ***Ranunculi*** and ***Helianthema.***

(*To be continued.*)

MAIANTHEMUM BIFOLIUM.

To the Editor of the 'Phytologist.'

Sir,—At the beginning of the present month (June, 1861), I visited the habitat of the ***Maianthemum bifolium,*** in Forge Valley, near Scarborough, and found it growing in great abundance. The following remarks refer to it:—It extends about ninety yards in a continuous line, on the brow of a steep cliff, with a north-easterly aspect, and in some places reaches down the embankment twenty yards or upwards. Within these limits it is in some places so dense that a foot could not be put down without treading on some of the barren leaves. It is shaded by Oak, Mountain Ash, and Birch, and grows in black peat. I think that it is to be wished, with regard to this plant, that some one of our eminent botanists would visit the locality, and give his opinion as to its claims as a native. Should it be denied a place among our indigenous plants, it would become a question what period of time would it require to establish it in the manner it is. Its companion, ***Trientalis europæa,*** grows in complete beds, and reminded me forcibly of the beds of seedling Rhododendrons that one occasionally sees in nurseries. Near to the same spot, in a similar soil, and with the same aspect, grows *Lastrea Fœnisecii*. I had also the good fortune, early in the spring, to meet with *Carex digitata*, in the same valley. I did not find merely a few solitary roots, but it was generally dispersed throughout the valley. Dried specimens of any of the above-named plants, I am agreeable to exchange or give to any lover of botany.

FREDK. REYNOLDS.

Ayton, near Scarborough, 19*th June*, 1861.

BOTANICAL PROFESSORSHIP, CAMBRIDGE.

The readers of the 'Phytologist,' and British botanists in general, will be well pleased to hear that "Charles Cardale Babington, Esq., M.A., of St. John's College, F.R.S., F.L.S., etc., was unanimously elected Professor of Botany, in the room of the late very sincerely lamented Professor Henslow." Mr. Babington is well known as the author of the 'Manual of British Botany,' a work which placed our Flora in its real relationship with the vegetation of Europe, as expounded by continental botanists; and which has extended the knowledge of our native plants more than any work since the publication of the 'English Flora' of Sir J. E. Smith. Very great progress has been made in the accurate distinction and critical comparison of our native plants, since the general circulation of the Manual. Professor Babington is also the author of a Flora of the Channel Islands, a Flora of Bath and its environs, and of a Flora of Cambridgeshire, recently reviewed in the 'Phytologist.' He is, besides, one of the editors of the 'Annals of Natural History,' and is distinguished as an antiquary by his work 'Ancient Cambridgeshire.'

He is, besides, one of the valued contributors to our pages; and we have much pleasure in announcing to our readers the above intelligence, and hope that the Professor may long enjoy the honourable position in which he has been placed by the unanimous choice of the authorities of his *Alma Mater*.

KENTISH BOTANY.

Walk from Deal to Folkestone, through Walmer, under the Cliff to Kingsdown and St. Margaret's, along the Downs by the South Foreland, Dover, Lydden Spout, and Eastwear Bay.

At Deal we refreshed and rested for the night; and next morning, the 6th (see 'Phytologist,' vol. v. p. 213), set out by Walmer, Kingsdown, the South Foreland, etc., to Dover. This is not the nearest way to Dover from Deal, but the direct road neither affords the fine views nor the rare plants which we had the pleasure of collecting on this our fourth day's excursion. There are not so many plants to report as on the previous days' botanizing, but the following are of far greater interest than the majority of those which had hitherto been observed.

About Walmer, on the beach, or between the road and the sea, *Reseda lutea, Diplotaxis muralis, Onopordon Acanthium, Trifolium fragiferum, T. scabrum*, and the much rarer *T. suffocatum* were collected. *Linum angustifolium* was very plentiful, among which a broad-leaved form was seen, which may have been mistaken for *L. perenne,* a species recorded as occurring in these parts.

Marrubium vulgare was seen here for the first time during this botanical tour. *Chlora perfoliata, Anthyllis Vulneraria, Fœniculum vulgare, Chenopodium murale,* and *Linaria spuria* abounded, and several were, notwithstanding the sterility of the soil, very luxuriant. *Centranthus ruber,* and *Linaria Cymbalaria* were well established on the beach in shingly depressions; a situation in which we had never seen either of these two plants previously. The plants selected, in all probability, these stations for themselves. Their establishment there could hardly have been effected by human agency.*

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* A remark on some plants in this country, usually found only on walls, will not here be inappropriate.

The Sedums are usually mural plants in the south-east of England. *Sedum album, S. dasyphyllum* are seldom or never found here growing on the ground. They grow on rocks in Scotland, and probably, one of them at least, in the west of England, also on rocks. Rocks in the south of England are as rare as brick walls in Scotland; and these and several other plants are necessarily restricted to what are called artificial erections. But the plants are not necessarily indebted to human agency for these artificial localities; in all probability they selected these

At Walmer, or rather on Walmer's shingly beach, on the west end of the village, towards Kingsdown, there were observed several very luxuriant forms of *Medicago denticulata*; the stems were quite procumbent, above a foot long, bushy, or with numerous series of branches, and with only a single twist, or a turn and a half, of the cochleate spiral fruit.

During the subsequent portion of our walk we observed other gigantic forms of Leguminiferous plants, and these will be mentioned in the sequel.

Medicago denticulata was probably long considered only a variety of *M. maculata* on the one hand, and *M. minima* on the other. It differs from the former in the absence of a spot on each leaflet, and it is usually smaller in size. From the latter it differs in its flatter fruit. The fructification of *M. maculata* resembles in figure the nave of a cartwheel, having many convolutions of the spiral. In *M. denticulata* the convolutions are few, viz. from one to three, with flat sides; in *M. maculata* and *M. minima*, the convolutions are numerous, and the base and apex of the cochleate spiral are rounded, not flat. Also when the fruit of *M. denticulata* is quite ripe, it is furnished with prominent radiating ribs, and it is also of a black colour.

This Medick, *M. denticulata*, has been observed and collected during recent years at Wandsworth, near the steamboat-pier; also at Southampton, not far from Itchin Ferry, and at Black-

situations for themselves; or selected brick walls and tiled roofs because there was no natural site present suited to their economy.

Some plants have a preference for walls and roofs in this part of the kingdom, but are not exclusively restricted to such places. *Saxifraga tridactylites* and *Sedum acre* are examples. These indeed often grow on walls, but in some places they grow plentifully on the ground. Various species thrive equally both on walls and on the ground. Shepherd's-purse (*Capsella Bursa-pastoris*) and *Arenaria serpyllifolia* or *A. leptoclados* are familiar examples. *Parietaria officinalis*, *Linaria Cymbalaria*, *Centranthus ruber*, and *Cheiranthus Cheiri* rarely grow on any other situation but on walls. The first of the last-mentioned four plants is universally admitted to be a genuine native; the three remaining are as universally branded as certainly introduced, their introduction being at a more or less remote period.

These three species, viz. *Linaria*, *Cheiranthus*, and *Centranthus*, grow in the southern parts of our isle *on walls*, because here there are but few places where rocks of any kind crop out or rise above the surface of the ground. Rocks there are none in the south-east of England, except a few in Sussex, and where the chalk, the common substratum of a third part of England, is laid bare by the sea, or by the operations of the quarrymen. Hence but little stress can be laid on the heath and Parson's Green. The variety *M. apiculata* has very recently been detected at Battersea, on a gravelly heap of soil lately laid there to raise the level of the new park. This park is nearly opposite the steam-boat Cadogan Pier, and close to the Prince Albert public-house, on the Surrey side of the river.

Before we reached this part of the beach, we lighted on a fine colony of young plants of *Lavatera arborea* (all seedlings), produced from the *rejectamenta* of the adjoining gardens. It was observed in a cottage garden on our way from Canterbury to Sandwich, and it is probably more or less cultivated about Deal and Walmer. The *Lavatera* will probably remain undisturbed in this locality, and it would be gratifying to learn (if any reader of this who resides near Walmer, or ever goes thither to botanize would inform us) that it is still growing in that place. Several of the plants were in flower, some in fruit, but the greater portion were seedlings.

Between Walmer and Kingsdown we looked vigilantly and anxiously for *Lathyrus maritimus;* and we had the gratification of seeing this fine and rare plant in great perfection and profusion also, scattered over the pebbly beach, not far from Kings-

fact of these plants growing on artificial erections, in determining either their non-nationality or their nativity. More confirmatory evidence than the mere fact of their growth on walls, in quarries, and by the coast, must be adduced before their alien origin can be satisfactorily established.

In our excursion along the greatest part of the rock-bound coast of Kent, our attention was much engaged on these points; and we were inclined to admit that there is no valid proof of alienism which can be established against these plants from the stations where they are now seen. Historical testimony might decide the point, but this is negative, not positive.

Parietaria officinalis grew everywhere, both at the foot of the chalk rock and at a distance from it; so did *Eupatorium cannabinum. Linaria Cymbalaria* and *Centranthus ruber*, neither of them uncommon in Kent, grew in depressions on the shingly beach. *Cheiranthus Cheiri* was struggling with the rank vegetation of Thistles and large Umbellifers, and had well established itself on the earthen rampart of Dover Castle, far enough from either rocks or walls. This latter plant appeared here and there on the verge of the cliff, all along from the South Foreland to the town of Dover. It probably grew on the rock below, which was not approachable; it certainly grew well on the thin covering of soil which topped the chalk rock.

We were unable to detect, in this locality at least, any natural indications of alienism in the appearance and circumstances of the Wallflower. Botanists have universally agreed to maintain that it is an alien in England; but it is not easy to discover on what grounds, except that of contemporary testimony, which is often conflicting, and not always supported by Nature herself.

down. All the specimens were in fruit, and a few still in flower and fruit both. There need be no fear about specifying the locality as definitely as we can; for there is no risk of robbing the station. The roots of the Sea Pea run so far among the shingle that the plant can protect itself from (against) the ravages of rapacious plant seekers, and the greediness of plant sellers. It is desirable that others should enjoy the delight we felt, even though they might not have the time, the patience, nor the perseverance to hunt for it so long and assiduously as we did. This was one of our most important captures, it may not be termed a discovery; for the localities, though vaguely given, as "Beach near Walmer," "Between Kingsdown and Walmer," and "Between Deal and Dover," are probably all meant to signify this *one* station where we saw the plant, very near to Kingsdown, and above a mile from Walmer.

The other plants observed in this part of our day's walk were *Crambe maritima,* here and there sparingly on the shingly beach; *Geranium robertianum,* the maritime variety; and a pelorian form of *Linaria vulgaris, Glaucium luteum, Echium vulgare,* etc.

From Kingsdown we walked on to St. Margaret's, under the cliff, and a very warm walk it was. The breeze, though blowing briskly from the sea, was counteracted by the influence of the cliff, and never reached within a hundred yards of the lofty, steep rocks. We kept botanizing on the undercliff; the upper one was a perpendicular or overhanging chalk rock, on which nothing did or could grow.

Here we first lighted upon large plants of *Brassica oleracea,* long past flowering, and far, very far beyond our reach. We subsequently saw them growing on a lower site, on the *débris* of the chalk, between the road and the sea. Here abounded *Erythræa Centaurium,* or the narrow-leaved variety, which we were good-natured enough to consider *E. linariæfolia;* and broad-leaved forms also appeared, which we could not prevail on ourselves to name *E. latifolia. Gentiana Amarella* was in great force, as geologists say, and very luxuriant, often a foot high, very broad-leaved and bushy. Is this the variety or species called *G. germanica? Linum angustifolium* again appeared, with the largest forms of *Chlora perfoliata* ever seen, and of the most intense glaucous hue, with flowers of the deepest possible yellow.

With many other plants seen before, and too tedious to enumerate,—probably to read about,—there were seen *Linaria minor*, *Nepeta Cataria*, *Beta maritima* (on the cliff), *Cynoglossum officinale*, and *Pyrethrum maritimum*. Here also *Statice spathulata*, or *S. binervosa*, and *Crithmum maritimum* introduced themselves to our notice; the former of the two claimed, and also got, a considerable share of our attention. *Orobanche minor* and *Orchis pyramidalis* we were just able to recognize, though their season had long past. The most common plants of the place were *Eupatorium cannabinum*, *Parietaria diffusa*, and *P. erecta?* most abundant on these rocks, and in the interstices of the fallen masses; and *Picris hieracioides* particularly large and handsome, with deep orange-coloured flowers.

Petroselinum sativum was as well established on the beach near St. Margaret's as *Linaria Cymbalaria* and *Centranthus ruber* are near Walmer.

At St. Margaret's, on the cliff, we saw the Dover variety of *Silene nutans*, a very coarse, large, and rough-leaved form of this plant. It differs very much from the delicate slender form in which this species appears on the rock whereon Nottingham Castle is built.

The walk to Dover along the narrow seashore, between the waves and the cliff, was no further practicable because of the tide, which at this time approached too near the rock to permit a comfortable or safe passage in this direction, and no other way was left but that over the downs, along the sea margin of the cliff, by the South Foreland. From this lofty eminence we had an extensive view of the sea and of the whole coast from the North Foreland all along to Shakspeare's Cliff, beyond Dover. We could see plainly all Pegwell Bay, where we were yesterday, with the lofty cliffs about Margate; also the towns of Sandwich and Deal. Walmer village, with its castle, which has not much of a castellated appearance, was in the foreground of this extensive prospect. The coast of France to the right of Calais, and the steep chalk rocks bounding on the south what are called the Chops of the Channel, were very distinctly seen. Proceeding along by the light-houses, the town of Dover appeared snugly situated between the hills and the shore, with its future harbour of refuge on the left, and its majestic castle on the right. This was a view worth going seventy miles to look at; and it would be easier to imagine the delight of the spectator than to describe his feelings, if he have any feelings, or any sympathy with the beautiful and the picturesque.

We were looking for plants, not for sublime scenery; and our description, like our subject, ought to be of a simple character; therefore no attempt is made to describe scenes which made a very deep impression on our feelings, and which will never be forgotten. They may be more durable than the stupendous cliffs themselves, which have existed nobody but the geologist knows for how many myriads of ages. Our business was to observe and chronicle humbler objects.

On these bare lofty hills, exposed to every wind that blows, we observed *Spiræa Filipendula*, *Erigeron acris*, *Silene nutans*, *β*, the variety which grows about these coasts; also *Onopordum Acanthium*, quite at home, but not so stately as in gardens, where it is dignified with the name of Scotch Thistle, probably because it does not grow in Scotland; also *Carlina vulgaris* and *Carduus acaulis* were there, though mostly in an incipient condition. Further on *Cheiranthus Cheiri* became quite a common plant, neither on rocks nor on walls, for there are no rocks above the surface, nor walls on these bleak downs, yet it appeared to be well satisfied with its situation, and throve and increased prodigiously, to the great chagrin of botanical geographers, who obstinately, if not maliciously, confine its locality to strictly artificial erections, "almost all its habitats on walls and buildings"!!!

The cliffs near Dover may be called artificial, for every portion of the earth is the work of the Almighty artificer, though they do not owe their being to human agency. This plant, the Wallflower, has taken a fancy to the Castle Hill, and spreads profusely among the rank growth of Thistles, Helminthias, and other coarse plants. Part at least of this huge rampart may be artificial, in the general and restricted sense of this term, but even here the *Cheiranthus*, if not native, is certainly spontaneous.*

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* If the area of the two plants *Cheiranthus Cheiri* and *Matthiola incana* be contrasted, it will be seen that the Wallflower has what may be called a general distribution, or it is found in most counties of England and Scotland. In the former the county of Cheshire ought to be added, for it grows on the rock on which Beeston Castle is built (see 'Phytologist' for January 1860, p. 6), and it grows on rocks in other parts of the island, from the Gloucester Avon to the banks of the fair Tay. Between the South Foreland and Dover Castle it grows on the ground: in this tract there are neither rocks nor old walls. It is true that the little soil of the South Downs lies on the chalk rock, but so does the soil of the North Downs,

In a cultivated part of the downs, opposite to Dover Castle on the east, plenty of *Linaria spuria*, *Calamintha Acinos*, and *Lolium multiflorum* was growing; also *Sinapis nigra* and *S. alba*, the former very plentiful, and the latter not scarce. This is a rare plant in Kent, though extremely abundant in Surrey. Here *Diplotaxis muralis* was profusely distributed all over the cultivated parts of these hills.

We went round the external rampart, crossing the meadow between the Deal road and the Castle, and from this elevation, with the Castle on the left and the town before us and on our right, we had a most satisfactory and very pleasing view of this charmingly situated ancient seaport.

Dover is snugly ensconced in one of the deepest combs of the south-eastern downs. This term 'comb' is almost peculiar to the chalk formation of the south of England, and always signifies a more or less deep depression stretching into the hills at a right angle, or forming some angle with the main ridge which indicates the direction of these remarkable elevations.

The comb at the bottom of which Dover is situated, may be compared to a basin with about a fourth part of its circumscribing sides broken off, and this broken-off part may represent

where the common turf is chiefly formed of *Brachypodium pinnatum* and *Festuca ovina;* but in these parts the Wallflower does not grow as it grows between St. Margaret's and Dover.

The other plant to be contrasted with the Wallflower is *Matthiola incana*, which is recorded as having been found in only two places in England, viz. near Hastings, Sussex, and in the Isle of Wight; yet this rare plant, found in only two localities, is called native, or a denizen, which may be whichever you please, gentle or uncapricious reader!—and the Wallflower, for which hundreds of localities could readily be furnished, is branded as a certainly introduced plant or alien!!!

It will be, or it may be, alleged that the Wallflower, which abounds on the downs, at the verge of the cliff near the South Foreland and Dover, came originally from the small gardens of the coastguard men and from the Castle. This allegation is far from improbable; but is it not also probable that the Stock in the Isle of Wight came also from the gardens of the fishermen about Freshwater? Admitting that these threw away the old stems of the plants,—which is the common practice,—a stiff breeze from the north-east would easily blow them along the downs and over the cliff. Among the *rejectamenta* of Freshwater's little bay, or cove, I found stems and fruit of *Lavatera arborea*, a plant which is common in the gardens of Freshwater. It is not so common however as the Stock is, and the consequence may have been that the latter grows on the cliffs of the Isle of Wight, while the former is unknown in the Isle except as a garden plant.

the side of Dover which is opposite to the seabeach. The town fills the bottom of the comb, and has extended along the shore to the east, under the hill on which the Castle stands. When the traveller enters from Deal, the Castle is on the left. When he arrives from the Continent, the Castle is on the right, and the new fortress building on the west of Dover is on the left-hand. The background is completely shut in by steep hills, so that Dover is open only on the south, or that part which is opposite to the sea. Entering either from Deal or from Folkestone the visitor obtains a bird's-eye view of the town.

This is surely one of the most singularly situated and the most picturesque of England's numerous and beautiful urban localities. Its environs, especially its cliffs, are most favourable for botanical pursuits; but as it was now late in the season, and, what was worse, late in the day, we had but little leisure to note the rare plants of this ancient military and naval station. We had made arrangements for sleeping at Folkestone, seven or eight miles further, and determined to take Lydden Spout in our way, therefore haste and good speed were both requisite, in order that we might reach our quarters in proper time.

The only notable plant observed at Dover was *Diplotaxis tenuifolia*, which abounded on the walls, and was not scarce along both sides of the road between Dover and Haugham (here pronounced *Hauffham*).

The sun was setting as we scoured along the land side of the Shakspeare, as they call this celebrated precipice, a singular and well-merited honour to England's greatest poet.

It was dark before we reached the houses on the cliff,* which are occupied by the Preventives and their families. A little boy belonging to one of the coastguard-men volunteered to conduct us down the precipice by a zigzag rude staircase, consisting of four hundred and forty-four steps, united by several inclined planes by way of landings.

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* Future botanists who may follow our track (for there are good pickings, rich gleanings, obtainable after those who have spent more time on this coast than we could afford), should, instead of going on straight to Lydden Spout, descend the cliff by the "Shrimpers' Steps," a short distance beyond the Shakspeare, and botanize along the shore till they reach Lydden Spout. We suppose the way between the cliffs and the sea is passable at all times, but this should be ascertained. On reaching Lydden Spout, either the seashore or the top of the cliff may be chosen by the traveller, but the latter is the easier way for the pedestrian.

It was now so dark that we could not distinguish the tall Sow-thistles and the wild Lettuce from the equally gigantic black Mustard, and consequently the rare plants entered by the Rev. G. E. Smith as found in his time within three hundred yards of the Lydden Spout, were as much a myth as the story of Lear and Edward, son of the Earl of Kent, a story which has given both renown and a name to one of the most remarkable objects of this singular coast.

We passed along the beach a considerable way before reaching the spout, which, we too rashly concluded, on reaching the beach, to be as great a myth as the celebrated fountain of Arethusa, which flows half a hundred times as many miles under the sea as this runs underground in South Kent.

Lydden Spout, however, to our great satisfaction, by its pleasing sound informed us of our proximity to fresh-water. This spout, by which water sufficient to turn an ordinary water-wheel, pours down a steep incline, takes its name from Lydd, a village in the interior, about four miles from the coast. Near this village there is a stream which disappears by a swallow-hole, and emerges from the cliff by a large hole or cutting, a few hundred yards on the Folkestone side of the rude staircase by which we descended from the top of the cliff to the beach.

It was too evident that our botanizing had terminated for this day at least, unless we could have botanized by candle-light; and even if this had been practicable, we had no candles. In this emergency the best thing to be done was done, viz. to pick our way in the dark between the sea and the cliff along Eastwear Bay, and by the martello towers to Folkestone. This we did by the combined exertion of plucky resolution and strong thews, and by the useful aid of the coastguard force, who kindly pointed out our way. We reached our destination rather late, and in a rather weary plight.

Reviews.

A Guide to the Isle of Wight. By the Rev. Edmund Venables, M.A., *and eminent Local Naturalists.*

The tourists, excursionists, or valetudinarians of the isles of Albion, have no reason to be discontented with the extent and variety of the topographical books now in circulation. The fourth estate has good reason, not only for being contented with this branch of literature, but for being proud of the excellence of the guide-books now current. They are prepared for others than wayfarers who go to a place to tarry only for a brief period, and they may be perused with pleasure and improvement by a higher class of readers than those who only want to know how far it is from Cowes to Ventnor, and the names of the best hotels, and where the most comfortable quarters are procurable.

The antiquary, the historian, the geologist, and the botanist, can now get trustworthy information in these works, which are compiled to supply the wants of the genuine student as well as to fill up the spare hours of those who seek only relaxation, exercise, fresh air, and novelty, and who come here to admire and enjoy the beautiful and the picturesque.

Murray's handbooks to several parts of England, viz. to the south coast, Kent, etc., have long been in great repute for the comprehensive character of their contents.

Stanford's 'Guide to the Isle of Wight' is not inferior to Murray's celebrated handbooks in the interesting information it contains. The author and the publisher may think this high praise, for Murray's topographical publications are deservedly in the highest estimation for their excellence.

The new 'Guide to the Isle of Wight' has one distinguishing feature, viz. the Natural History portion; and this has been very carefully compiled from existing works, verified and enlarged by the personal observations of the authors. This feature is not peculiar to this Guide, for most guide-books introduce a little botany, etc., not always judiciously selected, from more general works. In the present work, the authors of the chapters on Natural History have given their names as vouchers for the truth and usefulness of what they have compiled on these subjects.

The geological portion of the work has been contributed and condensed from memoirs furnished by the many excellent geologists who visited this Isle and have written on the formations of its singularly formed exterior. The labours of the late lamented Professor Edward Forbes, we are glad to perceive, are not forgotten by the reverend author of this new 'Guide to the Isle of Wight.'

The articles on the botany, entomology (in part), and zoology, are by Mr. A. G. More, well known to the readers of the 'Phytologist.' Mr. George Guyon contributed the sections on the Coleoptera, Mollusca, etc. Two reverend contributors to the 'Phytologist,' the Rev. A. Bloxam and the Rev. T. Salwey, supplied the list of rare Mosses, Lichens, and Fungi.

It will not be doubted, much less denied, that this local work offers high credentials, both for the authenticity and proper arrangement of the facts which are recorded in its pages. The work is divided into three parts, and the contents are given below.

I. "Introduction, Approaches to the Island," and "Hints to Visitors." This part fills 8 pages.

II. "Places of Principal Resort, Walks, Drives, and Excursions." This part fills upwards of 300 pages, and is divided into ten chapters, of which Cowes, Newport, Ryde, Sandown, Shanklin, Bonchurch, Ventnor, etc., South-western Coast, Freshwater Peninsula, Yarmouth, and Voyage round the Island, form the principal topics.

The third part contains a general synopsis of the past and present condition of the island. This is divided into the following chapters, entitled Topography, Productions Natural and Artificial, Civil and Religious Affairs, Antiquities, General History of the Island, Geology, Zoology, and Botany. This is a very extensive range of subjects; yet it is but bare justice to state that the articles which we have read are all treated in a very satisfactory manner.

Several of the places described have been visited by us, and therefore we can vouch, on the *crede experto* principle, that the descriptions are genuine, interesting, and graphic. Instructive and suggestive essays might be easily composed on some of the topics above enumerated; for example, on its supposed ancient connection with the mainland of Hants, when the centre of the Solent was the bed of a river; and on the contingency still in the womb of futurity, when the peninsula of Freshwater has become an island, and the little river Yar a strait separating the new islet from the mainland of the eastern and larger portion of the island.

The trade in tin, believed to have been carried on by the Vectians of a long bygone age, centuries ere the haughty Roman taught the ancient Britons the superiority of Rome in warfare and civilization,—and the coastguard, soon to be numbered among the things that were, like the tin-trade and Roman superiority, remind us pensively, if not painfully, of the mutations of human affairs. We however are neither historians nor antiquarians, nor sentimentalists, but botanists, and therefore we will not be like the shoemaker who went beyond his last. The antiquities, the social state of the islanders, their religion, and their politics, must be left unsaid; our vocation is of a humbler kind. The brief space left for further notice of this excellent tourists' guide, must be filled up with some remarks on the *résumé* of its vegetable productions, so well compiled, as above said, by one of the earliest and most esteemed contributors to the 'Phytologist.'

Botanists rarely have reason to grumble at the meed of praise which they receive from each other; and this should not be begrudged, for it is usually all they get for their botanical labours.

Our author, for his botanical *résumé*, divides the Isle of Wight into five divisions: viz. first, the seashore; second, the Northern Tertiaries; third, the Central Chalk range; fourth, the Valley of the Greensand; fifth, the Undercliff, with the downs above it. "Only the more prominent or interesting" species, the reader is respectfully informed, "can find room here; but those who require more complete information, will necessarily refer to Dr. Bromfield's 'Flora Vectensis,' where the localities are most carefully indicated, and also to Babington's 'Manual,' which contains the," as our author informs us, "most accurate descriptions of all our British species."

Some botanists might demur before indorsing the latter clause of the sentence; but the author is well qualified to bear testimony to the value of a Flora which he and most British botanists have consulted with much profit. Mayhap he has not seen all the other British Floras now in circulation and use; or possibly he ignores their existence; or, worse still, not only holds them cheap, but deems them intrusives,—mischievous interlopers on the preserves of science, whose room would be better than their company.

The seashore on the north and east, and the lower cliff on the south of the Island, will most amply repay the botanist for the expense and trouble of a visit to these rich localities. Respecting the former our author says that "It is upon the tract of the 'dunes,' or sand-hills, lying immediately below St. Helen's, that the principal harvest will be made. This small piece of ground, not exceeding probably forty or fifty acres, has been ascertained to yield no less (fewer) than two hundred and fifty species of flowering plants, that (this?) being nearly one-third of the whole Flora of the Isle of Wight; and among those, not the least interesting are twelve out of the thirteen indigenous Trefoils. Indeed, the abundance of *Leguminosæ* and *Caryophylleæ* is the most striking feature of the sandhills, and brings to mind the use which has been made of the prevalence of these two families of plants to characterize a region warmer than our own. The two Stonecrops also might suggest a resemblance to the arid sands of the deserts, were it not for the Reindeer Moss, which is the next plant to meet the eye."

It may be observed that Quarr Copse, near the ruins of Quarr Abbey, can boast of the largest example of *Pyrus torminalis* in the island, probably the largest in existence; see 'Flora Vectensis,' p. 167. And within the ruined walls of what was once a large garden, orchard, or perhaps vineyard, there still flourish fine and numerous examples of *Inula Helenium*, an example of the remains of cultivation, not of an escape. Cultivation has long ceased in this locality, and the Elecampane is a melancholy evidence that on this now neglected spot there *once* grew better things, that are not to be found on "cow-pasture" or "sheep-leas."

Our author notices the curious fact that *Serratula tinctoria* and *Betonica officinalis* may be seen growing in the open pasture behind the fort (near Freshwater), a locality very different from the sheltered woods they usually inhabit. These shady, sheltered spots may be the usual localities of these plants in the Isle of Wight; but in Surrey it is not considered a great curiosity to see them both on the extensive and open heaths of this heathery county.

It would not be fair dealing towards the author and publisher of the 'New Guide to the Isle of Wight' to skim off the cream, as they say, or publish in our pages a list of the rarest and most interesting plants which appear in this summary of the Vectian Flora. All that is desirable here is a mere statement that this part of the work is most conscientiously performed. It is a satisfactory condensation of the most elaborate work on local botany ever published in this country; and which is honourably mentioned by the author of this botanical synopsis.

Some botanists may be of opinion that our author is not exactly correct in stating that *Erodium maritimum, Coronopus didyma, Euphorbia portlandica,* and *Agrostis setacea* find (have) their eastern limit in the Isle of Wight. Did he here abandon his trustworthy guide? Dr. Bromfield admits the existence of *Agrostis setacea* on Bagshot Heath. It is believed to grow also on the Blackheath tract of hills, not far from Ewhurst. Both these localities are east of the Isle of Wight. *Erodium maritimum* and *Euphorbia portlandica* have both been reported from Kent. We will not vouch for the verity of the report, but we do vouch for the extension of *Coronopus didyma* for at least one degree further east than any part of the Isle of Wight (see 'Phytologist,' *sub voce Senebiera.*) Our author may say, "Ay! but it is a mere interloper in the vale of Thames, *i.e.* about Kew, Wandsworth, Parson's Green, Brixton, and Highgate." Possibly this may be true, but is it anything else than a stray plant in the Isle of Wight? On Dr. Bromfield's authority, it is rarer in the Isle of Wight than in the vale of the Thames, and therefore more likely to be an interloper in the island than in Middlesex.

We dislike hypercriticism, but we confess that the first plant entered by name in the general synopsis was a puzzle. "*Statice occidentalis* grows on rocks and cliffs" (p. 468). Is this plant the same as *Statice rariflora,* Drej., or *Statice spathulata,* Desf.? It cannot be *S. rariflora,* for this is said, and doubtless truly, to grow in salt-marshes and in muddy places, and is probably, as Dr. Bromfield states, a variety of *S. Limonium.* In the sequel, viz. on p. 473, *S. spathulata* is entered as one of the plants to be numbered with the extinct species, "*Euphorbia Peplis, Lathyrus maritimus.*" Again, two or three lines lower down the same page, it is stated that "two of the rock plants are peculiar to this end of the island; if, at least, we suppose *Statice occidentalis* still survives," etc. By a logical, inductive process, it may be inferred that *Statice occidentalis* and *S. spathulata* are synonyms. It would have saved us some trouble if our author had told us so at the first; or better still, if he had been contented with one name for his plant, which is, after all, only a very problematical inhabitant of the Isle of Wight.

It may be of some help to those visitants of the Isle (botanical visitants) who may not be so well read in the nomenclature of botany as the author of this sketch, to be informed that *Lepigo-*

num rupicola (is this specific name a noun or an adjective?) is *Spergularia rupestris* of the London Catalogue, and attributed, but erroneously, to Cambessèdes, and which probably is *Arenaria rubra*, var. *macrorhiza*, Moris, Fl. Sardica, i. p. 278; see Bromfield's Fl. Vectensis, p. 76. The amiable author last quoted adds to the synonyms the following,—"Moris very judiciously considers this a mere variety, and assigns very sufficient reasons for his opinion." It might further be questioned whether *Spergula subulata* and *Sagina subulata* be merely synonyms, or representatives of two different plants!

In this synopsis of the Vectian Flora, the author has ventured to enter a few exotic or at least doubtfully native plants; for example, *Arum italicum*, *Melilotus arvensis*, etc.; and the following are humbly offered as supplementary to these suspected or certain aliens, viz. *Hypericum calycinum*, in a wood skirting the shore between Ryde and Quarr Copse; *Linaria purpurea*, not merely on walls, where it is not uncommon in some parts of England, but on the garden ground, where it had no appearance of having been either sown or planted by the present generation. *Impatiens parviflora*, not far from Ryde, on the road to Upton; *Actinocarpus Damasonium?*, *Villarsia nymphæoides*, *Hydrocharis Morsus-ranæ*,—see Bromfield, 476, who writes, "abundantly naturalized in a pool on Barrett's Common, two miles and a half from Ryde,"—*Stratiotes aloides?* These plants, or some of them, were seen in a small pond between Upton and St. Helen's, several years ago. There was no doubt about the *Villarsia*, but there is a doubt hanging to the others. It is now several years since we were there, and our memoranda are mislaid. It was unknown to us at that period, that they were not as common on the Isle as they are on the mainland.

The geographical relations of plants have been very much altered in modern times. The list of extinct plants and of the new arrivals in this island, shows that the laws which have been supposed to affect the distribution of plants, are not universally applicable. Observation and history both teach us that we must liberalize our *vegetable creed*.

We are not apprehensive that these critical remarks will be misunderstood; our object is simply to do justice both to the subject and to the author. In reference to the former, it is hinted that a more liberal use of the English appellatives might have been made, and that when it was either necessary or expedient to employ the scientific names, all needless synonymy should have been avoided.

In this periodical it has never been the practice "to look a gift-horse in the mouth," and we are disposed rather to be thankful for what we get, than to fret ourselves and our readers because we have not got more.

All tourists and residents, and especially botanical visitors, will appreciate the accurate and comprehensive lists of interesting species here recorded.

We can vouch for the accuracy of much that is here stated about the botany of the island, because we have been there, and have seen the plants growing, and "seeing is believing;" many of our friends and correspondents have been there also, and they have told us what they saw; and besides all this, there is the unimpeachable authority of the late Dr. Bromfield, than whom a more careful, trustworthy, and conscientious observer and faithful narrator never lived. It is self-evident also that the grouping of the species into maritime, marsh, heath, and wood plants, is a great improvement on the mere systematic arrangements. The connection of certain species with certain soils, as Saginas and sand, Trefoils with shingle, Orchids with chalk, etc., binds together the two sciences Geology and Botany, which mutually elucidate each other.

We are obliged to the author and publisher for setting before us an example of a really useful guide to one of the most popular resorts of our migratory and pleasure-seeking population; and we hope that the publisher will be encouraged to publish a series of handbooks to the other favourite localities, of which we have so many in our kingdom.

BOTANICAL NOTES, NOTICES, AND QUERIES.

Dates of Flowering of Plants in the Vicinity of Plymouth.

As the 'Phytologist' for June gives the dates of flowering of spring plants observed in the vicinity of Ross, I send the dates at which the following were observed in flower in the neighbourhood of Plymouth, thinking it may interest some of the readers of the 'Phytologist' to compare the two lists :—

Primula vulgaris,	Jan.	25
Ranunculus Ficaria, *L.*	„	26
Cardamine hirsuta, *L.*	Feb.	4
Potentilla Fragariastrum,	„	4
Chrysosplenium oppositifolium, *L.*	„	19
Vinca minor	„	19
Tussilago Farfara	„	19
Narcissus Pseudo-Narcissus	„	20
Mercurialis perennis	„	25
Cochlearia danica, *L.*	„	26
Sisymbrium thalianum, *Hook.*	„	26
Viola odorata	„	26
Adoxa Moschatellina	„	26
Nepeta Glechoma, *Benth.*	„	26
Oxalis Acetosella	March	9
Ribes Grossularia	„	9
Veronica serpyllifolia	„	9
Ranunculus hederaceus	„	9
Mœhringia trinervia	„	14
Stellaria Holostea	„	14
Viola sylvatica, *Fries*	„	15
Viola hirta	„	15
Saxifraga Tridactylites	„	15
Alchemilla arvensis	„	21
Veronica Chamædrys	„	21
Luzula campestris	„	25
Myosotis collina, *Hook.*	„	25
Linaria Cymbalaria	„	25
Fedia olitoria, *Vahl.*	„	30
Geranium robertianum	„	30
Geranium lucidum	„	30
Plantago lanceolata	„	30
Alliaria officinalis, *Hook.*	April	2
Ranunculus bulbosus	„	4
Anthriscus sylvestris	„	6
Lychnis diurna, *Sibth.*	„	6
Myosotis arvensis, *Hook.*	„	6
Anchusa sempervirens	„	9
Barbarea præcox, *Br.*	„	12
Prunus spinosa	„	12
Ranunculus repens	„	17
Scandix Pecten	„	18
Myosotis versicolor, *Hook.*	„	18
Geranium molle	„	18
Ajuga reptans	„	20
Geranium rotundifolium	„	20
Ranunculus acris	April	20
Geranium dissectum	„	22
Vicia sepium	„	22
Veronica montana	„	22
Orchis mascula	„	22
Agraphis nutans, *Link*	„	22
Medicago maculata	„	23
Medicago lupulina	„	26
Lysimachia nemorum	„	26
Lithospermum arvense	„	26
Allium ursinum	„	26
Barbarea vulgaris, *Br.*	„	27
Lepidium Smithii, *Hook.*	„	27
Lotus corniculatus	„	27
Poterium Sanguisorba	„	27
Potentilla reptans	„	27
Hypochœris radicata	„	30
Hieracium Pilosella	„	30
Cratægus Oxyacantha	May	2
Lithospernum officinale	„	2
Anagallis arvensis	„	2
Diplotaxis muralis	„	7
Potentilla anserina	„	7
Melampyrum pratense	„	8
Rhinanthus Crista-galli	„	8
Bunium flexuosum	„	8
Pyrus Aucuparia	„	13
Trifolium pratense	„	14
Arabis hirsuta, *Br.*	„	14
Berberis vulgaris, *L.*	„	16
Cotyledon Umbilicus	„	16
Digitalis purpurea	„	16
Orchis latifolia, *L.*	„	16
Papaver dubium, *L.*	„	18
Chrysanthemum Leucanthemum	„	18
Polygonum Bistorta	„	21
Tamus communis	„	23
Malva sylvestris	„	23
Rubus cæsius, *L.*	„	23
Cnicus palustris	„	25
Viburnum Opulus	„	25
Sambucus nigra	„	25
Apargia hispida	„	25
Stachys sylvatica	„	28
Jasione montana	„	30
Hypericum humifusum	„	30
Orobanche major, *Hook.*	„	30

I enclose a specimen of *Tillæa muscosa*, obtained from the locality mentioned in my last communication. T. R. ARCHER BRIGGS.

9, Torrington Place, Plymouth, June 4, 1861.

DWARF FORM OF ŒNANTHE LACHENALII.

(See 'Phytologist' for July, 1861, p. 208.)

Œnanthe Lachenalii grows (or rather did grow, being fearful that from the effects of draining, its habitat is destroyed) in Caughton Marsh, near Ross, a freshwater marsh, contiguous to the Wye river, and at least twenty miles from the tidal part of that river. I have, I believe, gathered the two forms from this marsh, but not on the same part. This plant attracted my notice some nine years since, and I have found it each year, except the last. I purpose searching, this season, another marsh in the vicinity of Ross, where possibly it may be growing, but has hitherto escaped notice.

UTILE ET DULCE.

Sir,—In your journal for the last month, page 155, you make a remark "that even the pictorial is not always relished by the strictly scientific *simplers.*" I hope however you will not hold your excellent journal bound by this. If we wish botanical science to advance, we must unite the *utile* and *dulce;* and few articles excite a deeper interest than well-told botanical rambles, forming little Registers of Botanical Facts, which attract attention and lead to others. As one of your readers I have been much pleased by the occasional notes of your excellent correspondent, Mr. Sim, of Perth, many of the facts which he has adduced from time to time, could be borne out by similar ones in other districts. During some leisure moment, I may drop you a string of them.

Please, Mr. Editor, be not too liberal in the use of dry technicalities. Let us all avoid a misty, cloudy style, and do our best to make botany as accessible and useful as it is pure, delightful, and ennobling.

A BOTANICAL WANDERER.

Campbeltown, Argyleshire, 4th May, 1861.

ELEVATION OF DARTMOOR.

I send a communication in answer to W. P., and it is as follows:—

Hypericum elodes. In the last number of the 'Phytologist,' your correspondent W. P. asks if there be any part of Dartmoor more than a thousand yards high; he will find, on looking at the undermentioned works, that no part is near the height he mentions. I give the following notes with pleasure, being the highest in the Devonian range of hills:—

Highest point.	*Reference.*	*Page.*	*Author.*	*Height.*
Cawsand Hill.	Geography Generalized.	186	Sullivan.	1782 ft.
Cawsand Hill.	Introduction to Geography.	59	Sullivan.	1782 ft.
Cawsand Beacon.	Manual of Geography.	86	Hughes.	1792 ft.
Cawsand Beacon.	Manual of British Geography.	20	Hughes.	1792 ft.
Cawsand Beacon.	Map of England and Wales.		Hughes.	1792 ft.
Cawsand Beacon.	Physl. Map of Eng. and Wales.		Chr. Knowl. So.	1792 ft.
	DARTMOOR HILLS.			
Rippon Tor.	Geography Generalized.	186	Sullivan.	1549 ft.
Rippon Tor.	Saturday Magazine, vol. xiii.	114	Sullivan.	1549 ft.

W. W.

RŒMERIA HYBRIDA (*Glaucium violaceum*).

This plant, which is stated in 'Phytologist,' vol. v. p. 124, to be peculiar to Cambridge, grows in certain fields which are not far from Castle Acre Priory, about four miles from Swaffham; also at Cressingham, about three miles from Watton. It grows, at or near Swaffham, in some fields belonging to Colonel Mason, and sparingly at Little Cressingham. All the above-named places are in the county of Norfolk, and the fields where this rare plant grows are on gravelly hills, and it was in flower before the end of June. I have no personal records of its occurrence in the adjoining county of Suffolk. W. Winter.

Tillæa muscosa and Scrophularia vernalis.

Sir,—As I am not aware that the occurrence of *Tillæa muscosa* and *Scrophularia vernalis* in Devonshire has been hitherto recorded, it may interest some of the readers of the 'Phytologist,' to hear that on the 13th May, 1861, I found the former of these plants growing on slaty soil near an old quarry on Colwell Estate, not far from the Plym, in the parish of Egg Buckland. On the 18th May, I was delighted to find a few plants of the rare *Scrophularia vernalis* in full flower, growing in a hedge-bank in a shady situation below Ham Wood, near the hamlet of Weston Mills, a few miles from Plymouth. T. R. Archer Briggs.

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Some of these specimens are examples of genera and species determined by the late Mr. Robert Brown, and published in his Appendix to the History of Arctic Discovery under Captain Parry. There is an account of some of them in the Report of the British Association for the Advancement of Science, held at Aberdeen in 1859.

Another attractive feature is added to these Arctic species, viz. tickets which contain a more than ordinary detailed account of the localities where they were collected, such as latitude, longitude, soil, elevation, etc.

Mr. Brocas showed the Editor of the 'Phytologist' a sample of the collection, and he has much pleasure in reiterating the testimonials given in their commendation by the eminent botanical authorities above mentioned.

Communications have been received from

John Lloyd; W. Pamplin; J. S. M.; F. Y. Brocas; B. M. Watkins; Sidney Beisly; John Sim; G. Macfarlane; Archibald Jerdon; W. Richardson, Junr.; W. P.; H. Boswell; T. Johnson; G. C. Oxenden; H. C.; W. Richardson; Harriet Beisly; Dr. Windsor; F. B. W. White; Professor Babington; C. J. Ashfield.

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